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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/529,294	03/25/2005	Raimund Ratzi	RATZI ET AL. -2 PCT	9148

25889 7590 01/23/2007  
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EXAMINER
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ZHU, WEIPING

ART UNIT	PAPER NUMBER
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1742

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/529,294

Applicant(s)

RATZI ET AL.

Examiner

Weiping Zhu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 3/25/2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall et al. (GB 975322) in view of Nishida et al. (Effect of B on the Densification and the Mechanical Properties of Sintered Iron Powder Compacts, J. Japan Inst. Metals, Vol. 54, No. 10 (1990), pp. 1147-1153).

With respect to claims 1-3, Marshall et al. ('322) discloses a method for producing a ferrous alloy component from a powder mixture comprising:

mixing thoroughly the powders by weight of Ni (0.5-6%), Cu (0.5-5%), Mn (0.5-4%), B (0.01-0.4%), C (graphite, 0.05-1.5%) and Fe (balance) (lines 30-39);

compacting the powder mixture in a die (lines 75-77);

sintering the compact in a non-oxidizing atmosphere at a temperature between 1100° C and 1400° C (lines 77-81) (i.e. during sintering boron combines with other constituents to form a liquid (eutectic) phase).

Marshall et al ('322) further discloses that Ni may be added as a powdered alloy with one or more of the other metals present (lines 29-32) (i.e. as a master alloy) with a eventual particle size of about 50 micrometers (lines 42-45), which is within the claimed master alloy average particle size of 10-90 micrometers in the instant claim 1.

The B content range of the powder mixture of Marshall et al. ('322) overlaps the claimed ranges of 0.03-0.2 wt% and 0.1-0.15 wt% in the instant claims 1 and 2. The weight ratio between the Ni and the B shares of the powder mixture of Marshall et al. ('322) exceeds 5 as claimed in the instant claim 1. The carbon content range of the powder mixture of Marshall et al. ('322) overlaps the claimed range of 0.15-0.8 wt% in the instant claim 3. The overlapping ranges establish a prima facie case of obviousness, MPEP 2144.05 I.

Marshall et al. ('322) does not teach a master alloy powder containing Ni, B and Fe as in the instant claim 1.

Nishida et al. teaches using a master alloy powder made of Fe, Ni and B with the B share of the master alloy powder of 10%, which is the upper limit of the claimed B share in the instant claim 1. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a master alloy powder containing Fe, Ni and B of Nishida et al. in the process of Marshall et al. ('322) in order to increase the volume fraction of the eutectic liquid phase and increase the sintering strength as disclosed by Nishida et al..

Marshall et al. ('322) does not disclose the volume share of the liquid phase during the liquid sintering as in the instant claim 1. However it has been well held where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical process, a prima facie case of either anticipation or obviousness has been established. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977), MPEP 2112.01 [R-3] I. In the

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instant case, the composition of the compact and the sintering conditions of Marshall et al. ('322) are identical or substantially identical to those of the instant disclosure, therefore, a prima facie case of obviousness exists. The same volume share of the liquid phase as claimed would be expected in the process of Marshall et al. ('322) in view of Nishida et al..

### ***Conclusion***

2. This Office action is made non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNICAL CENTER 1700